

I. Executive Summary

The Cranston-Gonzalez National Affordable Housing Act (NAHA) requires an independent actuarial analysis of the economic net worth and soundness of the Federal Housing Administration's (FHA's) Mutual Mortgage Insurance (MMI) Fund. This report presents our findings with respect to this required analysis for fiscal year (FY) 2003 using data as of March 31, 2003.

The primary purpose of this review is to estimate:

- The economic value of the MMI Fund, defined as the sum of existing capital plus the net present value of current books of business, and
- The current and projected capital ratio, defined as the economic value divided by the total insurance in-force (IIF).

Status of the Fund

NAHA mandated that the MMI Fund achieve a capital ratio of at least 1.25 percent by FY 1992 and a capital ratio of at least 2.00 percent by FY 2000. Last year's Actuarial Review estimated that the MMI Fund's capital ratio at the end of FY 2002 was 4.52 percent, the eighth consecutive year it exceeded the 2.00 percent FY 2000 requirement. This year, we estimate that the FY 2003 capital ratio is 5.21 percent. We also estimate that the FY 2005 capital ratio will be 5.70 percent and that the FY 2010 capital ratio will be 5.50 percent. Table I-1 provides our estimates of the Fund's current and future economic values and capital ratios.

In defining the capital ratio, NAHA stipulates the use of unamortized insurance in-force. However, "unamortized insurance in-force" is defined in the legislation as "the remaining obligation on outstanding mortgages" – a definition generally understood to apply to amortized IIF. Deloitte & Touche (D&T) uses the unamortized IIF measure (as generally defined) in calculating the capital ratio. However, it is also instructive to consider the capital ratio based on amortized IIF, which is the basis the General Accounting Office has used in its previous reports on the status of the Fund. Our estimate of the FY 2003 capital ratio using amortized IIF is 5.59 percent, our estimate of the FY 2005 capital ratio is 6.06 percent, and our estimate of the FY 2010 capital ratio is 5.91 percent. Unless stated otherwise, all references to the Fund's capital ratios in this report refer to the ratio computed using unamortized IIF.

Economic Value

D&T estimated the economic value of the Fund as of fiscal year-end 2002 to be \$22.6 billion. In the 2003 study, we estimate that the economic value of the Fund has increased by \$0.1 billion to \$22.7 billion as of fiscal year-end 2003. Two large offsetting impacts contribute to this increase. The loans endorsed during fiscal year 2003 are expected to increase the economic value of the Fund by \$2.8 billion. Countering this effect is the extraordinarily high prepayment activity that has adversely impacted the Fund's economic value during fiscal year 2003, as well as claim activity that has exceeded the levels

predicted in our 2002 study. It is important to note that despite these effects, our study indicates that both the economic value of the Fund and the capital ratio has increased during fiscal year 2003; the fiscal year-end 2003 estimated capital ratio is in fact higher than we had predicted in the 2002 study (5.21% as compared to 4.52% as of fiscal year-end 2002 and 4.91% predicted for fiscal year-end 2003), while the economic value is lower than we had predicted. This is primarily the result of the significant 21.5% decrease in IIF that occurred during fiscal year 2003 due to high pre-payments associated with very low interest rates.

Sources of Change in the Status of the Fund

Change in Economic Value from FY 2002 to FY 2003

We estimate the economic value of the MMI Fund (the Fund) to be \$22.736 billion at the end of FY 2003; this is an increase of \$0.100 billion over our estimate of our FY 2002-end estimate in last year's study and a \$4.534 billion (or 16.63 percent) decrease from our FY 2003-end estimate of \$27.270 billion in last year's analysis.

Our \$22.736 billion estimate of the Fund's economic value is comprised of total capital resources as of fiscal year-end 2002 of \$20.544 billion and the present value of future cash flows for in-force business of negative \$1.984 billion. The sum of these two components ($\$20.544 - \$1.984 = \$18.560$ billion) is shown as the economic value of the Fund at the beginning of FY 2003.

The difference between the economic value of the Fund at the end of FY 2003 and at the beginning of the fiscal year is the result of the activity in the Fund during the fiscal year. That is, the \$18.560 billion economic value at the beginning of the year should increase by the present value of any new loans endorsed during the year and increase by the amount of investment income accrued during the year.

The development of the \$22.736 billion FY 2003 estimate of economic value is as follows:

Economic value at beginning of FY 2003:	\$18.560 billion
Present value of FY 2003 endorsements:	\$2.773 billion
FY 2003 investment income:	\$1.403 billion
<u>Less FY 2003 administrative expenses:</u>	<u>(discontinued*)</u>
Economic value at end of FY 2003:	\$22.736 billion

The same calculation holds for future fiscal years, and is shown in Exhibit II.1, Page 1 for FY 2003 through FY 2010 (under the baseline economic assumptions).

The 16.63 percent decrease in the estimated economic value of the MMI Fund since fiscal year-end 2002 is accompanied by a 21.46 percent decrease in the unamortized IIF relative to our expectations in last year's Review. These changes result in the capital ratio increasing by 0.69 percent from 4.52 percent to 5.21 percent for FY 2003.

*Note: The deduction of administrative expenses in the economic value calculation was discontinued in the Actuarial Review for FY 2002 and subsequent. This change was made to reflect a federal credit reform requirement.

Table I-1

Projected MMI Fund Performance for FY's 2003 through 2010 (\$ Millions)							
Fiscal Year	Economic Value of the Fund (FY end)	Capital Ratio (FY end)	Volume of New Endorsements	Unamortized Insurance In-force (FY end)	Economic Value of New Business	Interest on Fund Balances	Admin Expense (discontinued)
2003	\$22,736	5.21%	\$146,377	\$436,401	\$2,773	\$1,403	\$0
2004	27,699	5.70%	143,521	486,332	3,392	1,572	0
2005	32,456	5.70%	145,163	569,588	2,974	1,783	0
2006	36,841	5.63%	140,864	654,740	2,365	2,020	0
2007	41,612	5.64%	145,289	738,071	2,497	2,274	0
2008	46,679	5.65%	151,967	826,875	2,521	2,546	0
2009	51,717	5.61%	156,990	921,709	2,202	2,836	0
2010	56,189	5.50%	162,740	1,022,397	1,328	3,144	0

Current Estimate of FY 2003 Economic Value Compared with the Estimate Presented in the FY 2002 Actuarial Review

This year's estimate of the FY 2003 economic value is \$4.534 billion lower than the economic value projected for FY 2003 in the FY 2002 Actuarial Review. This decrease in our estimate is comprised primarily of the following factors:

1. Change in selected loss rates
2. Change in economic forecast
3. Change in the estimate of the present value of the 2003 book of business
4. Econometric model revisions
5. Difference in net FY 2003 cash flows predicted in the 2002 and 2003 studies

Our selected loss rates this year reflect the continual improvement seen since the implementation of the loss mitigation program. The change in selected loss rates caused a \$698 million increase in our estimated economic value of the Fund. Countering this effect was the change in economic forecast, which had an estimated negative impact of \$1.128 billion. The estimated present value of the FY 2003 endorsements decreased by \$343 million relative to the FY 2002 Actuarial Review, as a result of a forecast for higher claim and prepayment levels in the early policy years relative to last year's estimates. Two revisions were made to the conditional claim rate model as a response to the observed underprediction of claims for recent books of business. These changes, which are discussed in detail in Section IV, resulted in an estimated decrease of \$2.369 billion. Lastly, the estimated net cash flows to the Fund during FY 2003 are estimated to be \$967 million lower than what had been predicted in the FY 2002 Review, as a result of significantly higher than predicted claim and prepayment activity during the first six months of FY 2003.

The impact of each factor is illustrated in Table I-2 below.

Table I-2

Summary of Changes in MMI Fund Estimated Economic Value Between FY 2002 and FY 2003 (\$ Millions)				
	Change in FY 2003 Economic Value	FY 2003 Economic Value	Change in FY 2003 Capital Ratio	Corresponding FY 2003 Capital Ratio
FY 2003 Economic Value Presented in the FY 2002 Review, Excluding the FY 2003 Book of Business		\$22,636		
Plus: Forecasted Value of 2003 Book of Business and Interest Income as Presented in the FY 2002 Review	+\$4,634			
Equals: FY 2003 Economic Value Presented in the FY 2002 Actuarial Review		\$27,270		6.25%*
Plus: Change in Estimated Present Value of Endorsements Originating in FY 2003	-\$343	\$26,927	-0.08%	6.17%
Plus: Change due to economic forecast	-\$1,128	\$25,799	-0.26%	5.91%
Plus: Change in replacing SR with OY1995 in CCR regression	-\$2,175	\$23,624	-0.50%	5.41%
Plus: Change due to OY2000 Adjustment	-\$194	\$23,429	-0.04%	5.37%
Plus: Change in Loss Rates	+\$698	\$24,128	+0.16%	5.53%
Plus: Change in Discount Rate	-\$141	\$23,987	-0.03%	5.50%
Plus: Change due to difference in FY 2003 predicted cash flows	-\$967	\$23,020	-0.22%	5.28%
Plus: Changes not attributable to methods, factors, etc.	-\$284	\$22,736	-0.07%	5.21%
Equals: Estimate of FY 2003 Economic Value	-\$4,534	\$22,736	-1.04%	5.21%

* The predicted FY 2003-end capital ratio in the 2002 study was 4.91%. This has been restated to 6.25% here due to the significant difference between predicted FY 2003-end insurance-in-force in the 2002 study (\$555.6B) and actual FY 2003-end insurance-in-force (\$436.4B).

Estimated Claim Severities

In the FY 2003 review, as in previous studies, we adopted a method that examines fiscal quarter loss rates and selects a claim severity rate by loan type – see *Appendix C, Claim Severity Model*. Since 1995 average claim severities have gradually decreased. As explained in the *Claim Severity Model* appendix, we base the selected claim severity on the experience over the past 10 quarters. Using claim severities based on the more recent observed experience has a positive impact on the estimated economic value of the fund.

Effects of Loss Mitigation

It is our understanding that during FY 1996, Congress passed legislation that authorized the FHA to recompense mortgagees for actions taken to mitigate potential losses by providing mortgage foreclosure alternatives, such as special forbearance, pre-foreclosure sales, deed-in-lieu-of-foreclosure transactions, partial claim payments, and loan modifications. It is also our understanding that in the private conventional mortgage industry, Fannie Mae and Freddie Mac have successfully employed many of these loss mitigation techniques.

The loss mitigation program is expected to reduce the number of foreclosures and to significantly reduce the costs associated with many foreclosures. Evidence is emerging that indicates this program is having economic benefits and perhaps social benefits. The loss mitigation program has been employed for the past four years and has experienced rapid growth. The relatively short history of the program makes it difficult to incorporate in the conditional claim rate models. Because of this, the effects of the loss mitigation program have not been explicitly factored into the claim rate model. We are implicitly reflecting the impact of the loss mitigation program in the selection of the claim severities by basing the selection on actual severities over the last 10 quarters.

Additional Comments

The estimates presented here reflect projections of events more than 30 years into the future. These projections are dependent upon a number of assumptions, including economic forecasts by Global Insight (formerly DRI*) and the assumption that FHA does not change its refund, premium, or underwriting policies from those assumed for this review. To the extent that these or other assumptions are not sufficiently accurate, the actual results will vary, perhaps significantly, from our current projections.

Estimation of the equations used for predicting prepayments and claims require large amounts of loan level data. These data take many weeks of intensive processing before they can be used to estimate the model parameters. Additionally, complete data for a fiscal year are generally not available until a few months after the end of the fiscal year because of reporting and processing lags. We obtained a data extract from FHA that represents activity as of March 31, 2003. This data extract contains loan level information, providing information on both the aggregate level of activity and the distribution of that activity. We have used these data to estimate our econometric claim and prepayment rate models.

Finally, while we have reviewed the integrity and consistency of the data supplied by FHA and believe it to be reliable, we have not audited it for accuracy. Additionally, the information contained in this report may not correspond exactly with other published analyses that rely on FHA data compiled at a different time or obtained from other systems.

*Note: Global Insight was created with the purpose of combining the two economic and financial forecasting companies - DRI (formerly Data Resources Inc.) and WEFA (formerly Wharton Econometric Forecasting Associates) operating as DRI•WEFA. The company changed its name to Global Insight on October 28, 2002.

Impact of Economic Forecasts

The economic value of the Fund and its pattern of capital accumulation depend on several factors. One of the most important factors is the future economic environment that will exist during the remaining life of the FHA's current books of business. We capture the most significant factors in the U.S. economy affecting the performance of the Fund's books of business through the use of the following economic variables:

- FHA mortgage contract rates – 30- and 15-year
- One-year Treasury Bill rates
- Appreciation in house prices
- Growth of mean household income levels
- Number of mortgage originations

The performance of the FHA's books of business, measured by the economic value of the MMI Fund, is affected by changes in these economic variables. Higher mortgage interest rates raise initial and ongoing payment burdens on household cash flows, and hence claim risks of new originations while decreasing the risk of claims on older loans with below-market interest rates. Lower mortgage interest rates have the reverse effect and tend to accelerate refinancing of earlier originations while increasing insurance claims. Faster average house price growth facilitates the accumulation of home equity, which tends to reduce the likelihood of a claim. It also contributes to greater mobility and household asset portfolio rebalancing, leading to greater turnover of housing and refinancing, thereby increasing prepayment rates. Faster income growth reduces the relative burden of mortgage payments on household cash flows over time, reducing the risk of claims as mortgages mature.

The base case results in this report are based on DRI's U.S. Economy forecast as of July 2003 for interest rates, average house prices, and inflation rates. We also considered three additional scenarios which were based GAO's judgmental scenarios in *FHA's Fund Has Grown, but Options for Drawing on the Fund Have Uncertain Outcomes* (February, 2001). Please note that the scenarios we selected are not strictly derived from GAO's analysis, due in part to the fact that the modeling process we employ is not the same as GAO. The characteristics of these three forecasts are described in *Appendix F, Economic Forecast* of this report. We considered one additional scenario where future losses were modeled using the loss rates selected in the 2001 Actuarial Review. We present our estimates of the Fund's performance under each of economic scenarios in Table I-3.

Our projections indicate that under all five scenarios, the Fund will exceed the NAHA FY 2000 capital ratio target of 2.00 percent.

Table I-3

Projected MMI Fund Performance by Macroeconomic Scenario (\$ Millions)						
	Base Case	Low House Price Appreciation	High Interest Rates	High Unemployment	Low House Price Appreciation, High Unemployment	Using 2002 Selected Loss Rates
Current Economic Value (FY 2003)	\$22,736	\$20,588	\$23,713	\$22,076	\$19,516	\$22,037
Current Capital Ratio (FY 2003)	5.21%	4.72%	5.43%	5.06%	4.47%	5.05%
Projected Capital Ratio (FY 2005)	5.70%	4.95%	4.29%	5.21%	4.45%	5.46%
Projected Capital Ratio (FY 2010)	5.50%	5.09%	5.00%	5.26%	4.80%	5.12%